

<b>Interview Summary</b>	<b>Application No.</b> 09/663,340	<b>Applicant(s)</b> HAMADA, KIMIMORI	
	<b>Examiner</b> Johannes P Mondt	<b>Art Unit</b> 2826	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Johannes P Mondt. (3) Nathan Flynn.  
 (2) Attorney M. Khatri. (4) \_\_\_\_\_.

Date of Interview: 01 November 2002 .

Type: a) ☐ Telephonic b) ☐ Video Conference  
 c) ☒ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.  
 If Yes, brief description: \_\_\_\_\_ .

Claim(s) discussed: 1,3-5,7-9,11-13 and 15-18 .

Identification of prior art discussed: Yamada, Hsieh as applied in Office Action 12 .

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's representative explored the possibility of a further amendment pertaining to a difference with above-cited prior art in that the body region is exposed through the upper main surface of the substrate, whereas in said prior art it is not. Examiner agreed to consider such amendment seriously, although in view of the after-final state of the application this further consideration would have to be carried out within the context of a new issue .

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i) ☒ It is not necessary for applicant to provide a separate record of the substance of the interview(if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

\_\_\_\_\_  
 Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case unless both applicant and examiner agree that the examiner will record same. Where the examiner agrees to record the substance of the interview, or when it is adequately recorded on the Form or in an attachment to the Form, the examiner should check the appropriate box at the bottom of the Form which informs the applicant that the submission of a separate record of the substance of the interview as a supplement to the Form is not required.

It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/04/2002 has been entered.

### ***Response to Amendment***

Amendment C filed 12/04/2002 and entered as Paper No. 15 forms the basis of this office action. Please be referred to "Response to Arguments" for comments on Remarks by Applicant included in said Amendment C.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

—: application's numerals.

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published under 35 U.S.C. 122(b). Therefore, this application is examined under 35

~~U.S.C. 102(e) prior to the amendment by the ALPA (pre-ALPA-35-U.S.C.-102(e)).~~

3. **Claims 1, 3-5, 7-9, 11-13 and 15-18** are rejected under 35 U.S.C. 102(e) as being anticipated by Mo et al (6,429,481).

With regard to claim 1: Mo et al teach (cf. Figure 1) a semiconductor device (cf. title and abstract) comprising (cf. column 4, line 45 – column 5, line 55):

a body region 36<sup>(24)</sup> (cf. column 5, line 1) of a first conductivity (p-type) formed in a semiconductor substrate 22/24<sup>(21/22)</sup> (cf. column 4, lines 55-58) and having a major surface opposite to a surface shared between the semiconductor substrate and the body region (see Figure 1); a plurality of trench gates 28<sup>(26)</sup> (cf. column 4, lines 55-59) extending through the body region; a plurality of first semiconductor regions 32A<sup>(28)</sup> (cf. column 4, lines 63-64) of a second conductivity type (n-type) different from the first conductivity type, the first conductivity regions having a depth as measured from said major surface of the body region (see Figure 1 and front figures), at least a portion of the first semiconductor regions flanking the trench gates on both of their sides (see Figure 1 and front figures) and being in contact with said trench gates via films 26<sup>(27)</sup> (cf. column 4, lines 59-60) bordering and insulating the trench gates; and a plurality of second semiconductor regions 16<sup>(32)</sup> (cf. column 5, lines 1-3) of the second conductivity type (n-type) having a second depth as measured from said major surface of the body region that is less than the first depth (mark the word "shallow" on line 2 of column 5, see also upper front figure and Figure 1), wherein the body region is exposed between the plurality of second semiconductor regions (in regions 18; cf. column 7, lines 28-31) (for

*(in between two regions 28 located in the same body region)*

Ad claim 9: third = 32. (17 contact)  
So Appl. has 28<sup>(N+)</sup>, 30<sup>(N+)</sup>, and 32<sup>(P+)</sup> regions  
Mo only has regions 16<sup>(N+)</sup> and 18<sup>(P+)</sup>.

providing body contact) and the second semiconductor regions 16 connect the plurality of first semiconductor regions spaced apart from one another (cf. column 5, lines 1-3).

In conclusion therefore, Mo et al anticipate claim 1.

*With regard to claims 3-4:* in the semiconductor device according to claim 1 as anticipated by Mo et al the first semiconductor regions 32A are formed along the trench gates 28; and the second semiconductor regions 16 connect the first semiconductor regions 32A formed between the trench gates so as to form a ladder-shaped configuration (see the ladder-shaped configuration consisting of alternating N<sup>+</sup> and P<sup>+</sup> regions 16 and 18 indicated in Figure 1). In conclusion, Mo et al anticipate claim 3 (claim 4 is identical to claim 3).

*With regard to claims 5, 7-8:* gates in a MOSFET (the device of Mo et al is a vertical power DMOSFET) inherently are connected to wiring such as to vary the voltage applied to the gate in order to change the conduction state of the channel. This variation of the conduction state of the channel is the essence of this type of device and therefore the existence of a wiring member is inherent to the gate and the device.

*With regard to claims 9 and 11-12:* source regions in a MOSFET are inherently connected to a wiring member so as to provide the voltage head between source and drain necessary for the device to function; while the very purpose of providing regions 18 is the provision of a body contact (cf. column 7, lines 43-52).

*With regard to claims 13 and 15-18:* the devices of claims 1, 3, 4, 5, 7-9 and 11-12 would necessarily have to be formed in order to function. Claims 13 and 15-18 fail to further limit the aforementioned devices but instead merely state their components.

### ***Response to Arguments***

4. Applicant's arguments filed 12/04/2002 have been fully considered but they are not persuasive. In particular, Hshieh et al do teach the further limitation introduced in Amendment C; please be referred to the front figure and numeral 130 in Figure 3B taken along the line AA' of said front figure; and column 4, lines 24-26. However, the combination of Yamada and Hshieh is less persuasive after the introduction of said further limitation, considering the different objective the device taught by Yamada. However, new art, particularly Mo et al anticipating the device of all claims of Applicant has since become available, as shown in the following art rejections.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is 703-306-0531. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 703-308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JPM

July 15, 2003